

# A Pilot Academic-Community Partnership to Advance the



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## BACKGROUND

- Optimal nutritional status and physical fitness are associated with improved energy regulation and weight, better academic performance, (1-3) increased stress resilience and an overall enhanced quality of life (4).
- The 2010 DC Healthy Schools Act (HSA), funded in part by a soda sales tax, provides nutritious, free breakfasts and lunches to all school children in need, and aims by 2015 to increase daily physical activity, to enhance health literacy and to expose students to school gardens and environmental education.
- HSA goals align with pediatric evidence-based health promotion, but progress has been slowed by a lack of engagement by students, faculty, and parents, especially in communities at greatest risk for health disparity.
- An innovative plan is needed to catalyze behavior change that encourages DC school children to eat healthy school foods now available to them, promotes physical activity, and helps with curriculum design for meaningful health education and the quantifiable documentation of outcomes.
- To succeed in the school environment, any program designed to strengthen the school wellness policy should not take hours out of time-limited academic scheduling and should ideally empower school staff to sustainably engage school children in healthful lifestyle change going forward.
- In this pilot spring semester project, rotating volunteer medical students visited two 5<sup>th</sup> grade elementary school classes weekly (Neval Thomas and Kenilworth) in one of the most impoverished neighborhoods of DC, to serve as health educators and mentors who both teach and model healthy behaviors.

## PARTICIPANTS

Table 1 Gender, BMI distribution, and baseline Pacer scores by participating school

	Total	Neval Thomas (NT)	Kenilworth (KW)
Number of 5 <sup>th</sup> graders	57	34	23
Gender (% female)	51	64	30
Age (years +/- SD)	10.9±0.5	10.9 ± 0.4	10.9 ± 0.6
BMI (units)	22.6±7.3	24±8.3	21.0±4.6
BMI z-score (= SD from 50 <sup>th</sup> %ile BMI; nl wt = BMI z-score ± 1)	0.98±1.1	1.1±1.2	0.73±0.96
SBP (mm Hg)	105±9.7	102±7.4	110±10.5
DBP (mm Hg)	66±7.2	65±6.1	67.0±8.6
Pacer score (laps)	33±23	47±26	21±10

## RESULTS

Figure 1. Baseline BMI-z scores

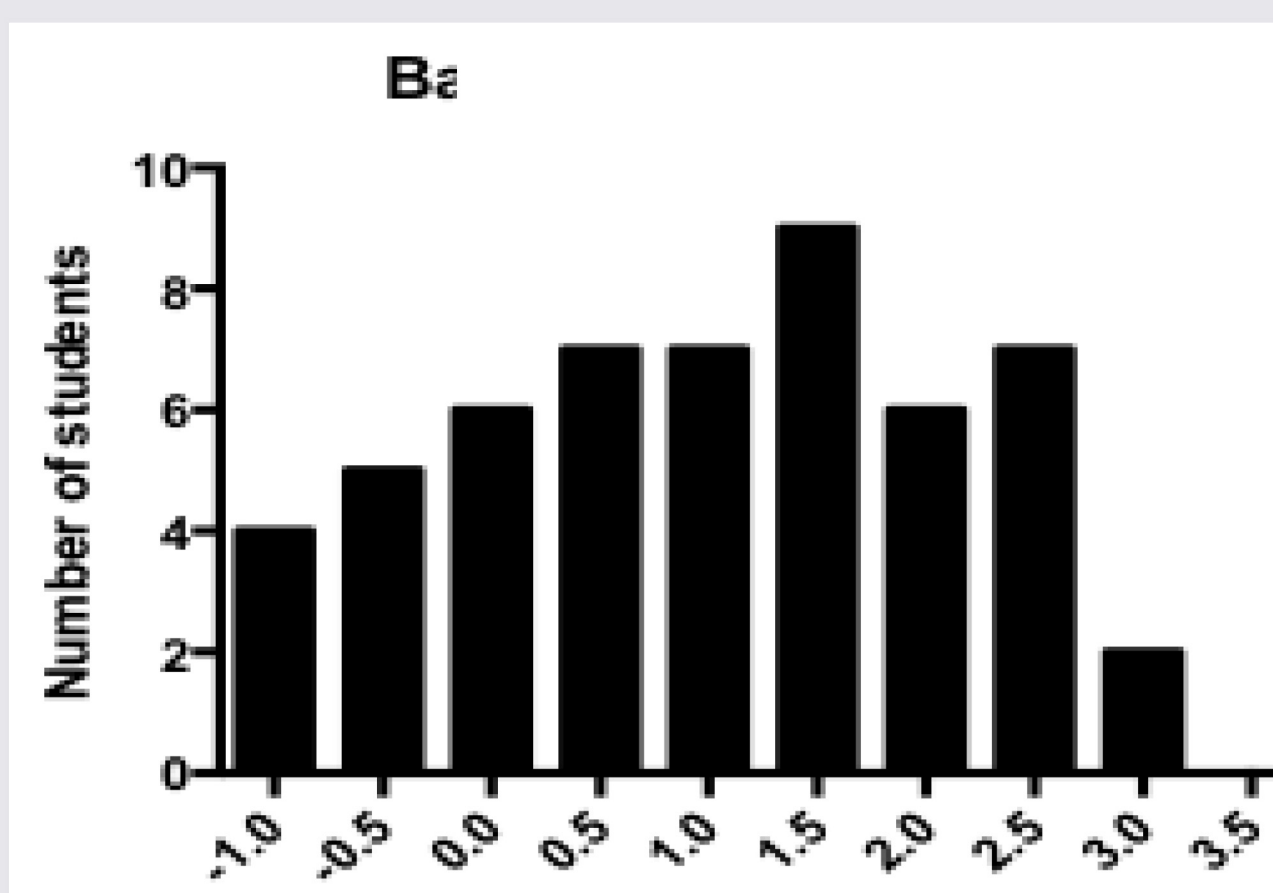


Figure 2. Post BMI-z scores

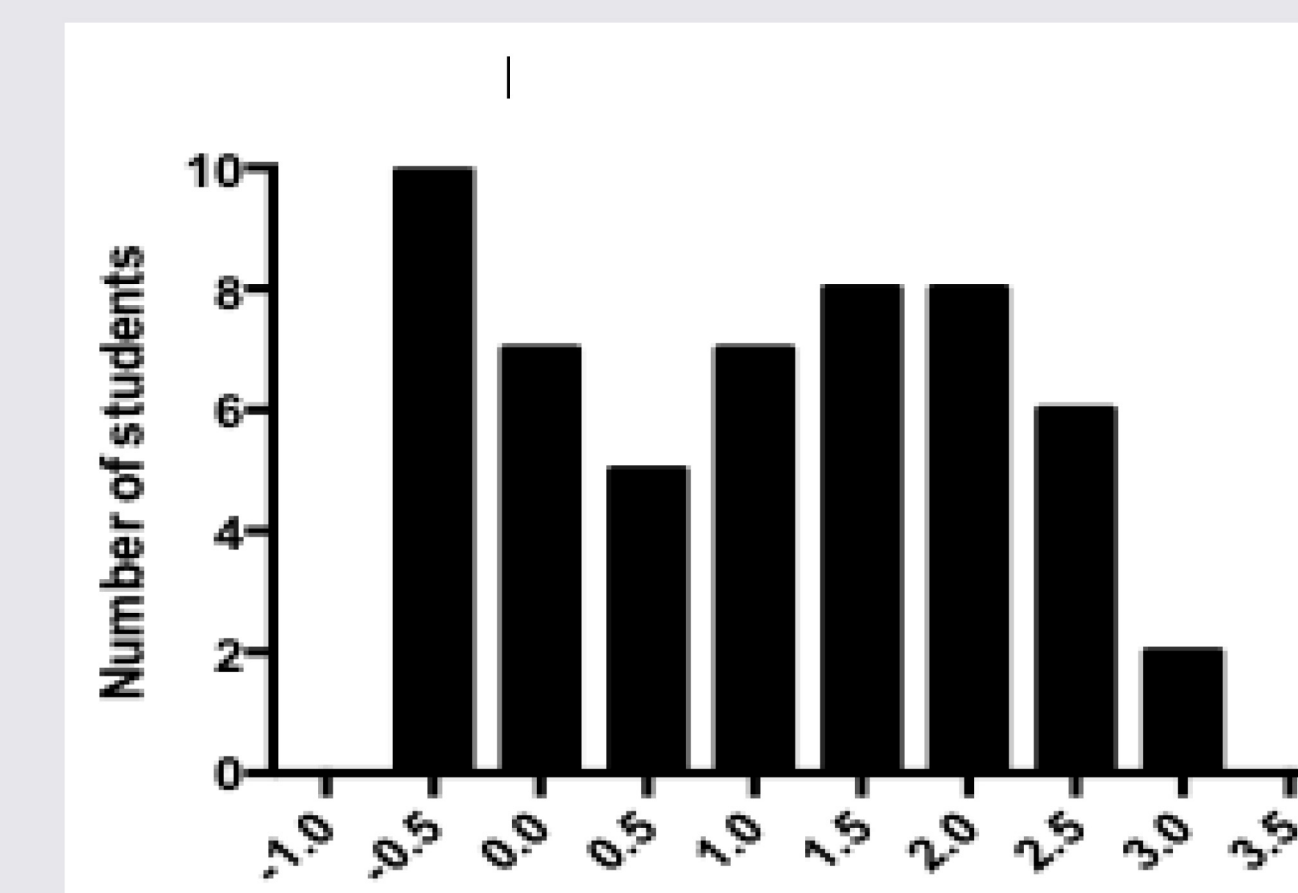


Figure 3. Pre-Post Pacer scores

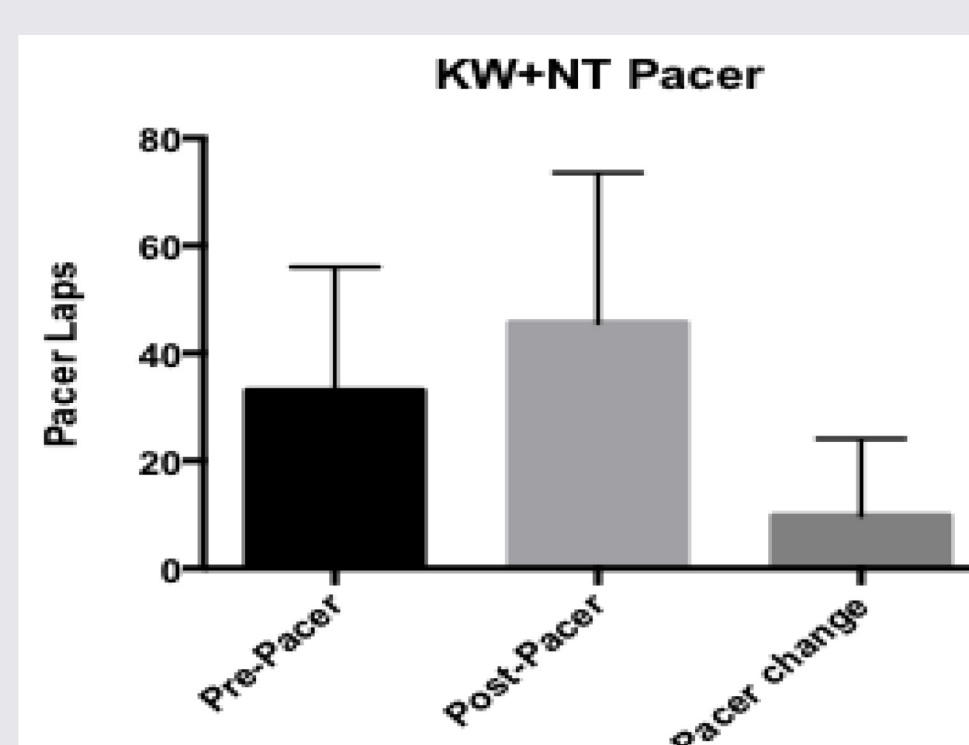


Figure 4 a & b. Pre-Post Blood Pressures

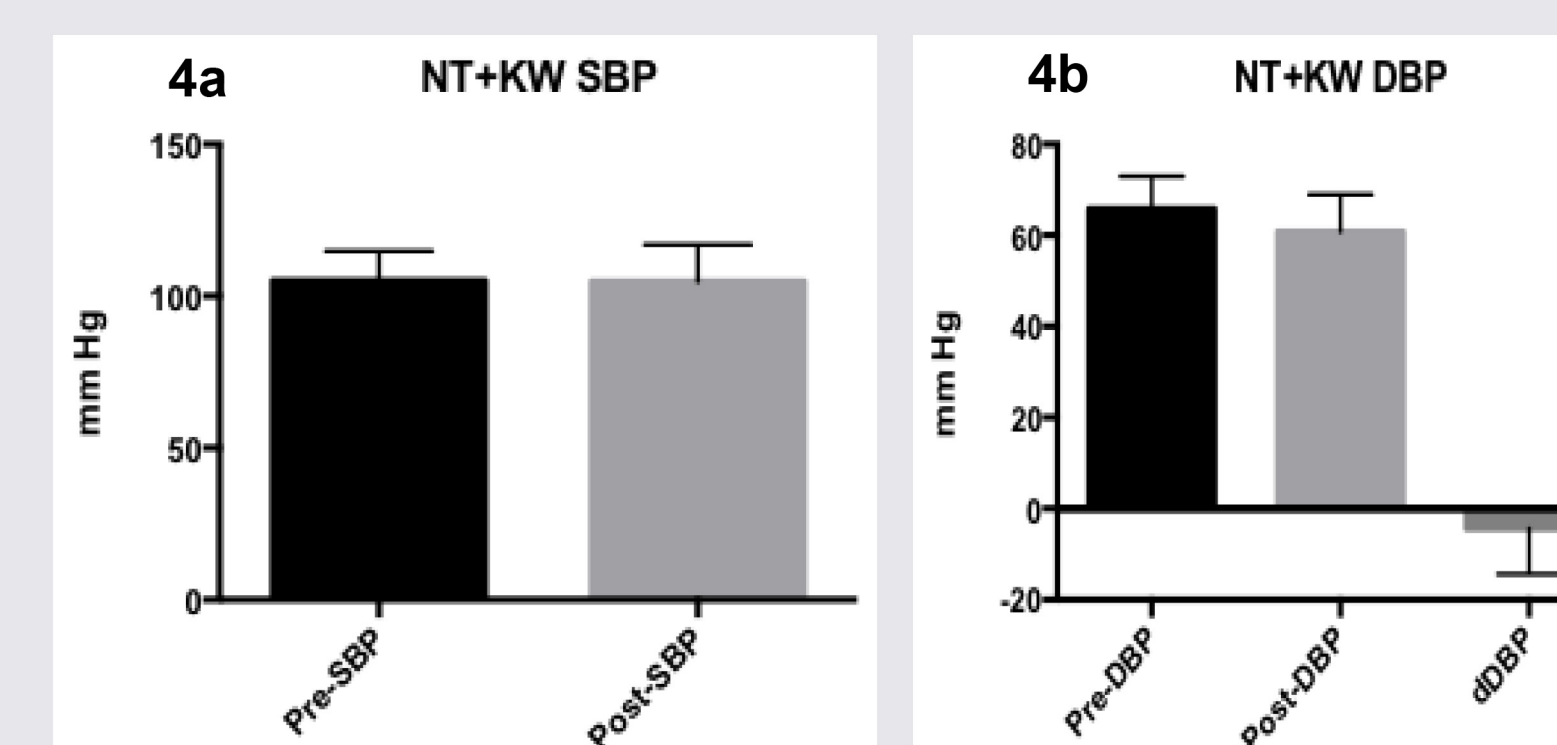


Table 2 Summary of pre-post health assessments

	Baseline	End-of-semester	p-value
BMI (units)	22.6±7.3	22.9±7.5	0.016
BMI z-score (= SD from 50 <sup>th</sup> %ile BMI; nl wt = BMI z-score ± 1)	0.96±1.2	0.97±1.1	0.637
SBP (mm Hg)	105±10	105±12	0.979
DBP (mm Hg)	66±7	61±8	0.0005
Pacer score (laps)	33±23	46±28	0.0006

## RESULTS

- BMI was skewed to the right with 21% overweight (BMI 85<sup>th</sup> to 95<sup>th</sup> percentile or a BMI z-score between 1 and 2) and another 25% obese (BMI >95<sup>th</sup> percentile or BMI z-score > 2).
- BMI increased as would be expected in growing children but the net change was small and there was no change in BMI-z score.
- Pacer scores increased, a validated measure of fitness
- Systolic and diastolic blood pressures (SBP & DBP) were in normal range. SBP did not change, but DBP decreased, consistent with improved fitness.
- Comprehensive Assessment System (CAS) health literacy also improved in Nutrition (up 2.9% NT, up 4.8% KW) and Physical Education Knowledge (no change NT, up 2.8% KW).
- The KW campus was closed in June 2013 and most students moved to NT. KiPOW could not be replicated at NT spring 2014 as lunch & recess were shortened to increase class time.
  - BP was still measured at NT pre-post and did NOT change
- We are currently piloting KiPOW in DC public and public charter Middle Schools with excellent engagement. Outcomes pending.

## LIMITATIONS

- To optimize participation, human subjects waiver of consent necessitated limiting outcomes to measures already obtained by schools, so we do not have objective assessment of change in nutrition or activity habits, but Team KiPOW on-site perception suggests improvement in these health behaviors.

## CONCLUSIONS

- Medical students teaching and modeling health-promoting behaviors to 5<sup>th</sup> grade elementary school children can improve health outcomes for those children and improve health literacy scores on standardized tests.
- Medical students in this program learn about both pediatric health promotion and the challenges of behavioral change.
- An academic-community partnership promoting face-time with trusted medical student mentors may be a feasible adjunct to reinforce school wellness policy in other inner city school districts in proximity to health professional schools.

## PURPOSE

To determine if a unique medical/academic/community partnership, entitled Team KiPOW™ (Kid POWER), can help DC public and public charter schools reach HSA goals using a mentored health promotion and behavioral change model.

## MATERIALS AND METHODS

- Team Kid POWER (KiPOW™) consists of medical students who all receive Playworks training (5), and commit three hours/month to visit elementary school classrooms midday over the spring semester to teach nine short nutrition and activity lessons, then to play at recess and eat school lunch together.
- Lesson topics: Breakfast, Water, Fruits & Veggies, Whole Grains, Moving Like You Mean It, Healthy Fats, Snack Attacks, The Power of Sleep, Mindful Living
- Parental involvement was encouraged with weekly newsletters, a mid-semester dinner and end-of-semester picnic.
- Medical students assisted school nursing and physical education personnel in attainment of pre-post measures of weight, height, blood pressure and Fitnessgram Pacer scores per standard school site protocols.
- Outcomes were evaluated by paired t-test. Cumulative 5<sup>th</sup> grade scores from standardized DCPS health literacy testing at the end of the semester from 2012 (before KiPOW) were compared with 2013 scores (post KiPOW) by unpaired t-test.



The Kid Power logo or KiPOW has been trademarked to capture the positive power attainable through the tenets of the DC Healthy Schools Act.

## Acknowledgement- Additional Team KiPOW Pilot Membership

Tyler Bradley-Hewitt, Kate Bren, Michael Codini, Nicole Hansen, Kristy Hawley, Allison Hoff, Annie Kennely, Jaqueline Mares, Amir Meiri, Lee J. Milas, Lauren Miyares, Elana Neshkes, Kirsten Norell, Brittany Oliver, Ruby Patel, Jill Remick, Kay-Anne Spence, Zach Spoehr-Labutta, Alicia White.

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